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Energy/
Environment
Systems Division

May 9, 1991

Mr. Donald Sreniawski
Region III
United States Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, IL 60137

Subject: **DECOMMISSIONING REPORT - GENERAL ELECTRIC COMPANY - CHEMICAL PRODUCTS PLANT - CLEVELAND, OHIO**

Dear Mr. Sreniawski:

ORAU has reviewed the decommissioning report for the General Electric Company's (GEC) Chemical Products Plant in Cleveland, Ohio and offers the following comments.

1. The final termination survey report did not identify any areas in excess of NRC guidelines; however, the report does not contain information to support that conclusion. Available data is reported as <BKG to <1000 dpm/100 cm^2 and <BKG to <250 dpm/100 cm^2 for beta and alpha activity direct measurements, respectively. It is more meaningful to provide actual data for sampling locations or areas rather than reporting background or less than the guideline levels. Based on past experiences, supporting documentation concerning measurement locations should be made available to the NRC in the event any questions arise about the radiological status of the site at a later date.

2. No information was provided as to the final survey procedures. For example, was a reference grid established, how many direct (fixed + removable) measurements were conducted, etc.?

3. Instrument calibration data was not provided in the report. This data is not required; however, a statement on the detection capabilities of the survey instrumentation would enable a reviewer of the docket file to determine if the instrumentation used in the termination survey was adequate for the radionuclides of interest.

4. Were any samples or measurements obtained on building exterior or on site grounds?

5. Exposure rate and surface dose rate measurement data should be included to demonstrate compliance with the applicable guidelines.

6. Contamination levels listed in the text are presented in units of cpm; contamination levels should be presented in units of activity (pCi or dpm) per area (cm^2 or 100 cm^2) for comparison with guidelines.

7. What type of measurements or samples were obtained from drain pipes in the drain trench located in the Lower Pilot Plant; were any other drains surveyed, and were any measurements taken on the rooftop vent system associated with the furnace ventilation duct in the Upper Pilot Plant?

8. The final survey was performed using GM pancake and alpha scintillation probes, connected to ratemeters. The survey was conducted by continuously scanning the surface, observing the meter response and noting any locations with meter readings greater than 3 times the standard deviation of background. Canberra indicates a detection sensitivity of about 650 dpm/100 cm^2 for the beta/gamma measurement. The alpha sensitivity would be lower because of the lower background of this type instrument; however, our experience has shown that beta-gamma measurements typically provide a more accurate evaluation of thorium and uranium contamination on most building surfaces, due to the problems inherent in measuring alpha contamination on rough, porous, painted, and/or dusty surfaces. It has also been our experience that surveys with small-area probes and ratemeters have not been particularly effective in identifying residual contamination at the 1000 dpm/100 cm^2 guideline level. Of course, the only way to be sure will be to perform the confirmatory measurements.

9. On page 44, the report states that on July 18, 1990, a final walk through inspection and survey of the remediated areas and several non-remediated areas was performed by GEC and Canberra personnel. GEC and Canberra indicated that no locations exceeding criteria were detected. However, on pages 44-45, the report states that several areas connected with the manufacturing process, such as, the shipping area, thorium traffic areas, and several other rooms were included in the walkover survey. These areas were not included in the initial survey report and no data was provided from this survey. If any data is available for these suspect areas, it would be to the advantage of the licensee to provide documentation to support the termination survey report.

10. On page 45, the report mentions that an area currently used to store contaminated materials storage boxes was surveyed and that the area would be resurveyed when the boxes were shipped out of the facility. No information was provided as to the current radiological status of this area.

If additional information in response to these comments is obtained, it should be provided to ORAU for review and assistance in preparing a confirmatory survey plan.

Assuming that no significant discrepancies in the site conditions and radiological status are identified during the confirmatory survey, it is our estimate that the survey activities will require approximately 5 team days on site. Plan preparation, on-site activities, sample analyses, and report preparation will run about $54,000.

Enclosed are maps that indicate locations where Oak Ridge Associated Universities' (ORAU) Environmental Survey and Site Assessment Program (ESSAP) proposes to perform confirmatory survey activities at the GEC's Chemical Products Plant. The areas proposed for survey include the remediated locations, areas immediately adjacent to remediated locations, areas above processing locations, and other locations of potential contamination, based on operating history and GEC documents. Cursory surveys may also be performed in a small percentage of areas beyond the processing areas.

The following proposed survey procedures describe the general approach that ESSAP would undertake in performing a confirmatory survey of the site based on the available information. Subject to an initial site visit and after consultations with and direction from an NRC representative, ORAU will provide a complete proposed survey plan to the NRC.

Proposed Survey Procedures

Interior Survey

1. Background exposure rates and baseline measurements would be determined for the building interiors.

2. Indoor measurements and sampling will be referenced to a 2 m x 2 m grid established on the floors and lower walls (up to 2 m). Areas of residual contamination approaching guidelines would be sub-divided into 1 m x 1 m grids for comparison with guideline averaging criteria. Upper walls and ceilings may not be gridded but would be referenced to floor grid coordinates or pertinent building features. A grid would not be established in areas of low potential activity and areas less than 10 m^2.

3. Indoor surfaces will be scanned using NaI (Tl) gamma scintillation, thin window beta-gamma GM, alpha scintillation, and/or large area alpha/beta proportional detectors. Particular attention would be given to cracks and joints in the floors and walls, ledges, ducts, drains and other locations where material may have accumulated. Floor areas adjacent to remediated areas, entrances and exits from processing areas, waste storage areas, and receiving areas will be scanned.

4. Locations of elevated direct radiation levels would be identified for further investigation.

5. Direct measurements and smears for total alpha and beta-gamma activity and removable contamination would be performed on a minimum of 10% of randomly selected grid blocks. Direct measurements and smears would also be performed on ungridded surfaces.

6. Direct measurements and smears would be obtained at locations of elevated contact radiation levels identified by the scans of building surfaces.

7. Exposure rates at 1 m above the surface would be measured at selected indoor areas.

8. Representative paint samples and residues from drains, ducts, floor cracks or joints, or ledges may be collected where such material is present.

9. Direct measurements and smears would be performed in selected drains and ventilation systems.

10. In areas where there is the possibility of subfloor or subsurface contamination, floor coverings may be removed so that samples can be collected. These samples may consist of subfloor construction materials or soil.

Exterior Survey

1. Background exposure rates and baseline measurements would be determined for the building exterior.

2. Outdoor areas to be surveyed, greater than 100 m^2, would be gridded in 10 m intervals.

3. Outdoor soil surfaces 10 m from the exterior walls of suspect areas would be scanned using NaI (Tl) gamma scintillation detectors. Paved surfaces may be scanned with a large area alpha/beta proportional detector.

4. Gamma surface scans and beta-gamma direct measurements may be performed on rooftops and rooftop exhaust vents.

5. Surface soil samples would be collected.

Measurement and sampling locations and frequencies may be increased or decreased, based on findings as the survey progresses and at the discretion of the NRC site representative.

Requests for additional information may be referred to me at FTS 626-0065.

Sincerely,

Wade C. Adams

Wade C. Adams
Health Physicist/Project Leader
Environmental Survey and
Site Assessment Program

WCA:jls

Enclosures
As Stated

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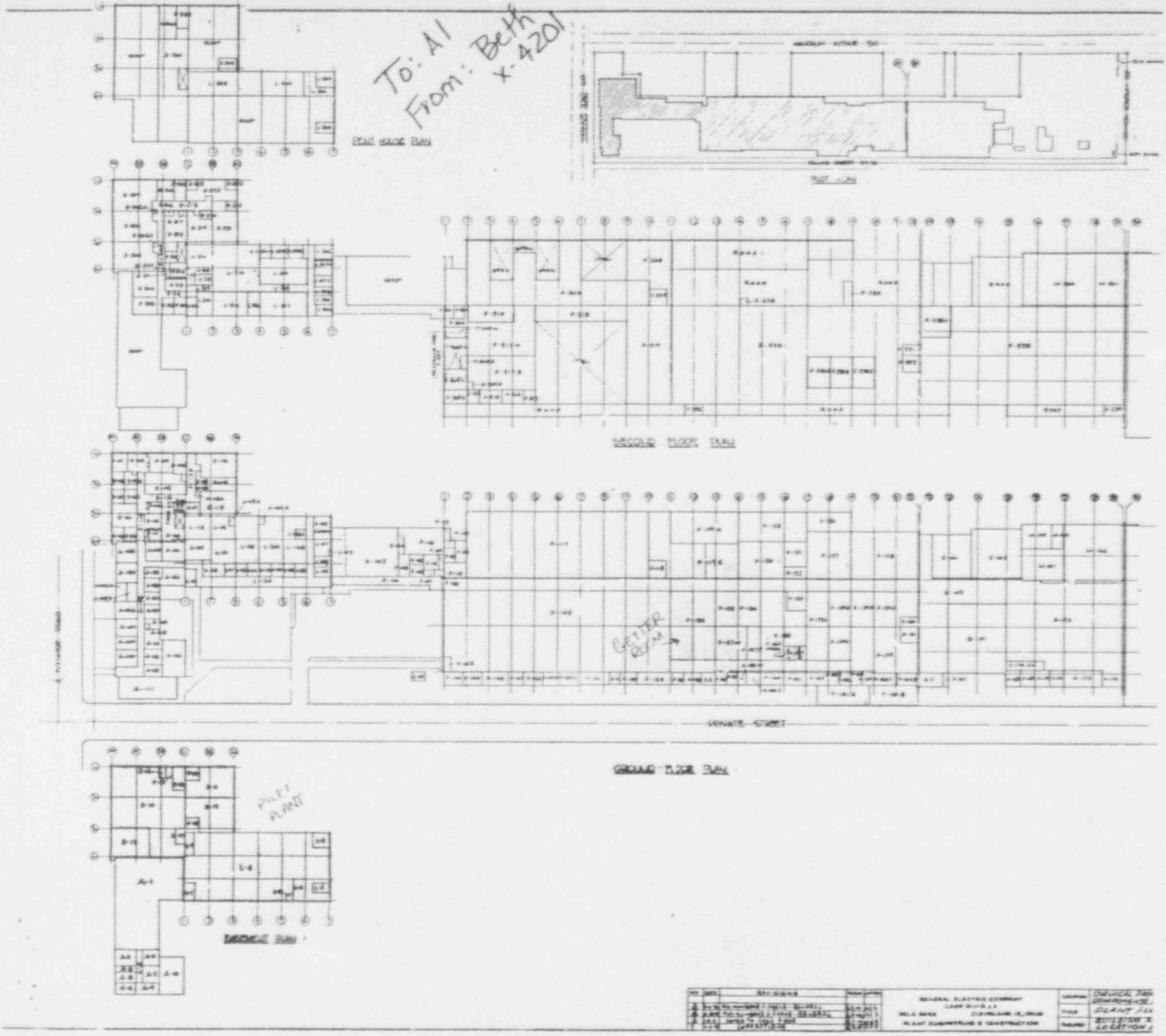
T. Mo, NRC/NMSS 6H3
C. Haughney, NRC/NMSS 6H3
File: GEL/100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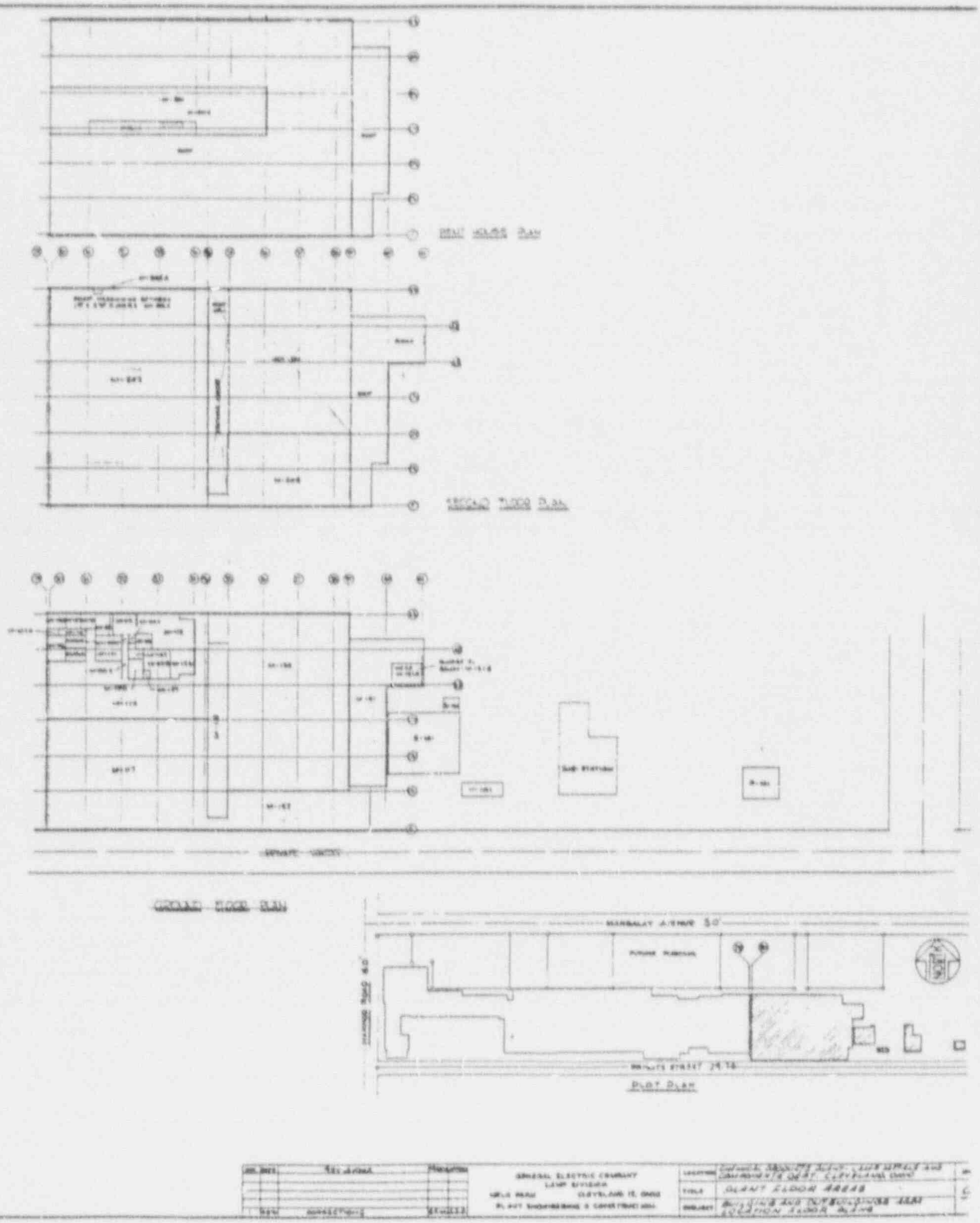
PLOT PLAN
SECOND FLOOR PLAN
GETTER ROOM
PRIVATE STREET
GROUND FLOOR PLAN
PILOT PLANT
BASEMENT PLAN
REVISIONS
GENERAL ELECTRIC COMPANY
PLANT ENGINEERING & CONSTRUCTION



PENT HOUSE PLAN
SECOND FLOOR PLAN
GROUND FLOOR PLAN
PLOT PLAN
GENERAL ELECTRIC COMPANY
LAMP DIVISION
NELA PARK CLEVELAND 12, OHIO
PLANT ENGINEERING & CONSTRUCTION
PLANT FLOOR AREAS